

**FORMER GORE COMPRESSOR STATION
CHARACTERIZATION REPORT/
RESPONSE ACTION WORK PLAN**

Hocking County, Ohio

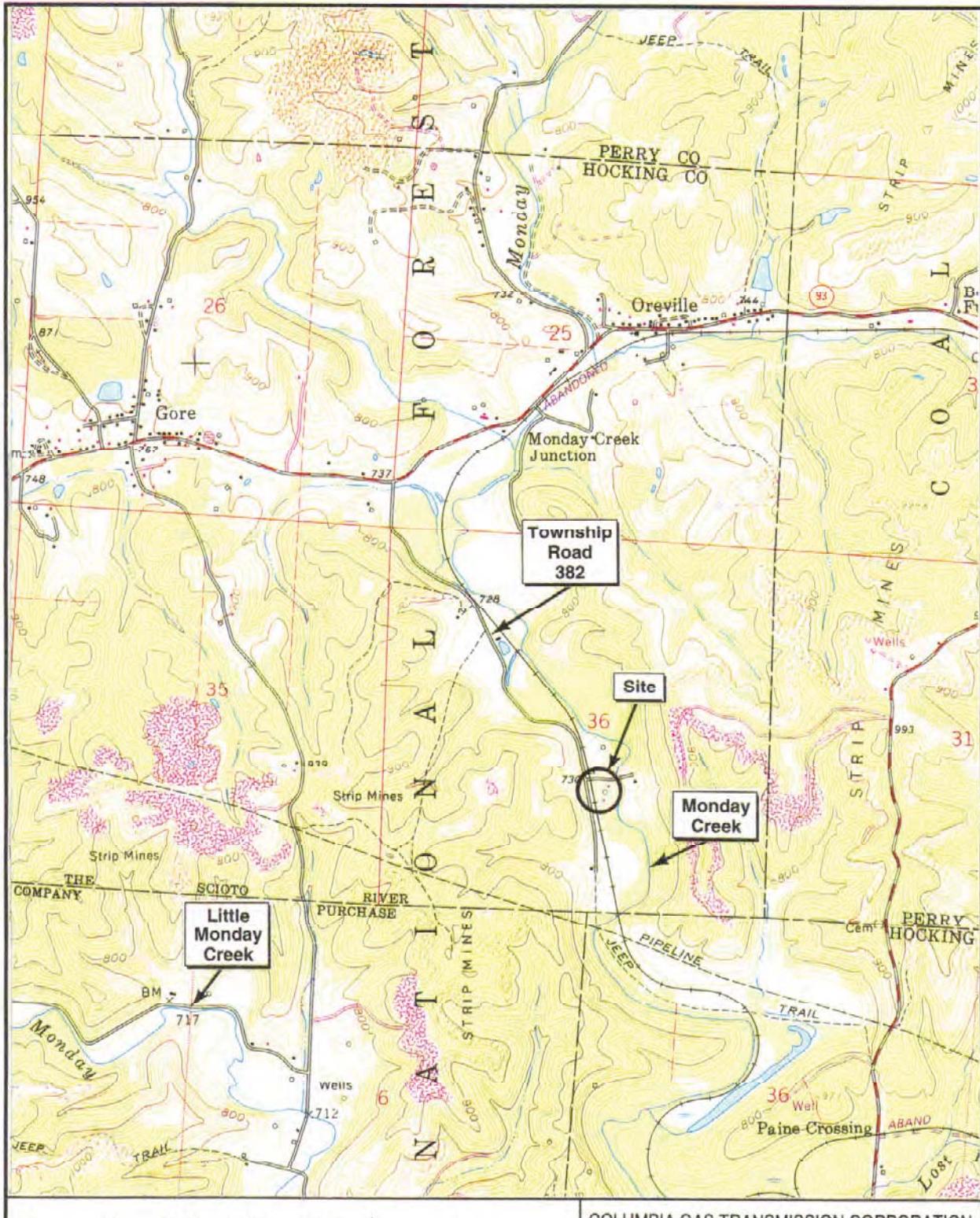
December 1999

Prepared for

COLUMBIA GAS TRANSMISSION CORPORATION

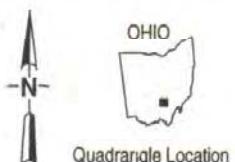
by

**ROY F. WESTON, INC.
ENVIRONMENTAL STANDARDS, INC.**



0 1,000 2,000 3,000 4,000
Scale in Feet

Source: U.S.G.S. 7.5 Minute Series Quadrangle
Gore, Ohio, 1998



COLUMBIA GAS TRANSMISSION CORPORATION

SITE LOCATION MAP
FORMER GORE COMPRESSOR STATION
CHARACTERIZATION REPORT

FIGURE 1-1

12/11/98

2. ENVIRONMENTAL SETTING

2.1 Physical Setting

The site occupies approximately 7.0 acres, with the former operating portion of this facility encompassing an area of approximately 0.5 acres. The existing compressor building and adjacent equipment are surrounded by a fence, which has a locked entrance gate on the north side. The site elevation, based on the Gore, Ohio 7.5 Minute Series USGS Quadrangle Map (Figure 1-1), is approximately 740 feet above msl. The site is located in a relatively flat area at the base of several peaks. The surrounding region consists of forested rolling hills and peaks, where the valley floors are approximately 720 to 740 feet above msl, and the surrounding ridge tops are approximately 860 to 1,040 feet above msl.

2.2 Climate

The site is located in Hocking County, Ohio, which is characterized as having a humid continental climate with moderate extremes of heat, cold, wetness, and dryness. The site is located in the southeastern portion of the state, approximately 50 miles southeast of Columbus. Temperatures in the region vary from an average winter temperature of 33 °F to an average summer temperature of 71 °F (Water Information Center, 1974).

The site receives a mean annual precipitation of 40 inches, as measured at the Athens Weather Station. Prevailing winds are generally from the west or southwest. The greatest levels of precipitation occur in the late spring and early summer, while the lowest levels occur in early fall and winter (Water Information Center, 1974).

2.3 Surface Water Hydrology

The site is located in a relatively level area, at the base of several peaks. There are no bodies of water located at the Former Gore Compressor Station. The site is located in the Monday Creek watershed that covers 116 square miles, and includes Little Monday Creek and several other smaller and unnamed tributaries. Based on the observed topography, surface water flow across

the site property is generally towards the southeast. Surface water from the former operating area would most likely infiltrate before reaching the nearest downgradient surface water body, Monday Creek, which is located approximately 500 ft east of the site. Monday Creek flows several miles south of the site before intersecting the Hocking River.

2.4 Geology and Soils

The site is located in the Appalachian Plateaus Province, which is prevalent in the eastern portion of Ohio. The Appalachian Plateaus region is underlain by an eastward-thickening succession of shale, sandstone, and coal-bearing strata of Pennsylvanian Age. The area is unglaciated and has thick units of sand and gravel fill. The subsurface geologic units in the vicinity of the site consist primarily of the Conemaugh Group, approximately 350 to 490 feet in thickness, and the Allegheny and Pottsville Groups undivided, approximately 450 to 620 feet in thickness (Figure 2-1). Both geologic types consist of shale, siltstone, and sandstone, with lesser quantities of limestone and coal (ODNR, 1997).

Soils in the area of the site, as mapped by the United States Department of Agriculture (USDA) Natural Resource Conservation Service and presented in the Hocking County Soil Survey (1977), are the Chagrin silt loam (0-2% slopes) and the Westmoreland-Guernsey silt loam (15-70% slopes) (Figure 2-2). Both soil types are well drained with moderate permeability rates (Figure 2-2).

2.5 Hydrogeology and Groundwater Quality

The Former Gore site area appears to be underlain by a sandstone sedimentary bedrock aquifer. This aquifer is generally composed of low-yielding shales and shaly sandstones that include numerous coal-bearing strata. Virtually all recharge to Ohio's aquifers is from precipitation (USGS, 1985). Domestic wells typically yield between 5 to 25 gallons per minute (gpm), with maximum yields as high as 250 gpm.

No wells have been drilled at the site, but it is likely that the site was supplied by a public water source, since the station had a sanitary waste disposal system. Given that the nearest residential

Table 4-3
Summary of Analytical Results

PRA		0	BACKGROUND		
PRA Description	Sample Type	Normal Sample			
	Sample Id	GOR-ASU016-7/0001	GOR-ASU017-7/0001		
Depth - ft bgs	1 - 3		1 - 3		1 - 3
Collected Date	10/28/97		10/28/97		10/28/97
Laboratory	Recra Amherst		Recra Amherst		Recra Amherst
Sample Collector	Roy F. Weston, Inc.		Roy F. Weston, Inc.		Roy F. Weston, Inc.
Result Units	MG/KG		MG/KG		MG/KG
Action Level			> CAL*		> CAL*
Category	Analyte		Result Flag		Result Flag
VOA					
	BENZENE	22	ND		ND
	ETHYL BENZENE	7800	ND		ND
	XYLENES (TOTAL)	1000000	ND		ND
	METHYLENE CHLORIDE	85	ND		ND
	ACETONE	7800	ND		ND
	1,1,2,2-TETRACHLOROETHANE	3.2	ND		ND
BNA	PYRENE	2300	ND		ND
P/PCB	AROCLOR-1254	1	ND		ND
METAL	BARIUM, TOTAL	5500	53.4		77.6
	BERYLLIUM, TOTAL	160	1.3		ND
	CADMIUM, TOTAL	39	2.0		ND
	CHROMIUM, TOTAL	230	14.8		9.4
	LEAD, TOTAL	400	ND		ND
	NICKEL, TOTAL	1600	14.4		ND
	MERCURY, TOTAL	20	ND		ND
	ARSENIC, TOTAL	.43	7.6	X	5.0
				X	4.5
					X

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

PRA	1				
PRA Description	PRA #01 COMPRESSOR PAD				
Sample Type	Normal Sample				
Sample Id	GOR-ASU001-70001	GOR-ASU001-70002	GOR-ASU001-70003		
Depth - ft bgs	0 - 1	2 - 3	4 - 5		
Collected Date	10/29/97	10/29/97	10/29/97		
Laboratory	Recra Amherst	Recra Amherst	Recra Amherst		
Sample Collector	Roy F. Weston, Inc.	Roy F. Weston, Inc.	Roy F. Weston, Inc.		
Result Units	MG/KG	MG/KG	MG/KG		
Action Level		> CAL*	> CAL*	Result Flag	> CAL*
Category	Analyte				
VOA	BENZENE	22	ND	ND	ND
	ETHYL BENZENE	7800	ND	ND	ND
	XYLENES (TOTAL)	1000000	ND	ND	ND
	METHYLENE CHLORIDE	85			
	ACETONE	7800			
	1,1,2,2-TETRACHLOROETHANE	3.2			
BNA	PYRENE	2300			
P/PCB	AROCLOR-1254	1			
METAL	BARIUM, TOTAL	5500			
	BERYLLIUM, TOTAL	160			
	CADMIUM, TOTAL	39			
	CHROMIUM, TOTAL	230			
	LEAD, TOTAL	400			
	NICKEL, TOTAL	1600			
	MERCURY, TOTAL	20			
	ARSENIC, TOTAL	.43			

Notes:

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J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

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Table 4-3
Summary of Analytical Results

PRA	
PRA Description	
Sample Type	
Sample Id	GOR-ASU002-70001
Depth - ft bgs	0 - 1
Collected Date	10/29/97
Laboratory	Recra Amherst
Sample Collector	Roy F. Weston, Inc.
Result Units	MG/KG
Action Level	Result Flag
	> CAL*
VOA	
BENZENE	22
ETHYL BENZENE	7800
XYLENES (TOTAL)	1000000
METHYLENE CHLORIDE	85
ACETONE	7800
1,1,2,2-TETRACHLOROETHANE	3.2
BNA	
PYRENE	2300
P/PCB	1
METAL	
BARIUM, TOTAL	5500
BERYLLIUM, TOTAL	160
CADMIUM, TOTAL	39
CHROMIUM, TOTAL	230
LEAD, TOTAL	400
NICKEL, TOTAL	1600
MERCURY, TOTAL	20
ARSENIC, TOTAL	.43

Notes:

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J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

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Table 4-3 Summary of Analytical Results

PRA						
PRA Description						
Sample Type		Sample Id		GOR-ASU003-70001		GOR-ASU003-70002
Depth - ft bgs	0 - 1			2 - 3		4 - 5
Collected Date	10/29/97			10/29/97		10/29/97
Laboratory	Recra Amherst			Recra Amherst		Recra Amherst
Sample Collector	Roy F. Weston, Inc.			Roy F. Weston, Inc.		Roy F. Weston, Inc.
Result Units	MG/KG			MG/KG		MG/KG
Category		Analyte	Action Level	Result Flag	> CAL*	Result Flag
VOA	BENZENE		22	ND	ND	ND
	ETHYL BENZENE		7800	ND	4.5	ND
	XYLENES (TOTAL)		1000000	ND	22	ND
	METHYLENE CHLORIDE		85			
	ACETONE		7800			
	1,1,2,2-TETRACHLOROETHANE		3.2			
	PYRENE		2300			
P/PCB	AROCLOR-1254		1			
	BARIUM, TOTAL		5500			
	BERYLLIUM, TOTAL		160			
	CADMIUM, TOTAL		39			
	CHROMIUM, TOTAL		230			
	LEAD, TOTAL		400			
	NICKEL, TOTAL		1600			
	MERCURY, TOTAL		20			
	ARSENIC, TOTAL		.43			

Notes:

* * > CAI " equals " X " when reported value is above characterization action level for this locale.

II flag : Numerical value is an estimated quantity

ND indicates Non-Detect.

Table 4-3
Summary of Analytical Results

PRA						
PRA Description						
Sample Type		Sample Id		GOR-ASU004-70002		
Depth - ft bgs		0 - 1		2 - 3		4 - 5
Collected Date		10/29/97		10/29/97		10/29/97
Laboratory		Recra Amherst		Recra Amherst		Recra Amherst
Sample Collector		Roy F. Weston, Inc.		Roy F. Weston, Inc.		Roy F. Weston, Inc.
Result Units		MG/KG		MG/KG		
Category		Analyte		Action Level	Result Flag	> CAL*
VOA		BENZENE		22	ND	0.014
ETHYL BENZENE		7800		ND	0.092	0.009
XYLEMES (TOTAL)		1000000		0.011	0.64	0.058
METHYLENE CHLORIDE		85				
ACETONE		7800				
1,1,2,2-TETRACHLOROETHANE		3.2				
BNA		PYRENE		2300	ND	ND
P/PCB		AROCLOR-1254		1		
METAL	BARIUM, TOTAL		5500			
	BERYLLIUM, TOTAL		160			
	CADMIUM, TOTAL		39			
	CHROMIUM, TOTAL		230			
	LEAD, TOTAL		400			
NICKEL, TOTAL		1600				
MERCURY, TOTAL		20				
ARSENIC, TOTAL		.43				

Notes:

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II flag - Numerical value is an estimated quantity

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

PRA	2				
PRA Description	PRA #02 FORMER BURN BARREL				
Sample Type	Normal Sample				
Sample Id	GOR-ASU005-70001		GOR-ASU005-70002		GOR-ASU005-70003
Depth - ft bgs	0 - 1		2 - 3		4 - 5
Collected Date	10/28/97		10/28/97		10/28/97
Laboratory	Recra Amherst		Recra Amherst		Recra Amherst
Sample Collector	Roy F. Weston, Inc.		Roy F. Weston, Inc.		Roy F. Weston, Inc.
Result Units	MG/KG		MG/KG		MG/KG
Action Level		Result Flag	> CAL*	Result Flag	> CAL*
Analyte					
VOA					
BENZENE	22	ND		ND	ND
ETHYL BENZENE	7800	ND		ND	ND
XYLENES (TOTAL)	1000000	ND		ND	ND
METHYLENE CHLORIDE	85	ND		ND	ND
ACETONE	7800	ND		ND	ND
1,1,2,2-TETRACHLOROETHANE	3.2	ND		ND	ND
BNA					
PYRENE	2300	0.33	J	ND	ND
P/PCB					
AROCLOR-1254	1	ND		ND	ND
METAL					
BARIUM, TOTAL	5500	86.2		94.4	54.3
BERYLLIUM, TOTAL	160	1.2		ND	ND
CADMIUM, TOTAL	39	1.2		1.5	1.5
CHROMIUM, TOTAL	230	9.0		10.8	12.0
LEAD, TOTAL	400	44.9		ND	ND
NICKEL, TOTAL	1600	ND		ND	ND
MERCURY, TOTAL	20	ND		ND	ND
ARSENIC, TOTAL	.43	7.8	X	6.0	X
				4.9	X

Notes:

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J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

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Table 4-3
Summary of Analytical Results

PRA	3	4
PRA Description	PRA #03 FORMER ACCESS ROAD PRA #04 NEW OIL UT (250-GALLON)	
Sample Type	Normal Sample	Field Duplicate (Rep)
Sample Id	GOR-ASS001-40001	GOR-ASS002-41001
Depth - ft bgs	0 - 1	0 - 1
Collected Date	10/29/97	10/28/97
Laboratory	Recra Amherst	Recra Amherst
Sample Collector	Roy F. Weston, Inc.	Roy F. Weston, Inc.
Result Units	MG/KG	MG/KG
Action Level	Result Flag	> CAL*
Category	Analyte	Result Flag
VOA	BENZENE	22
	ETHYL BENZENE	7800
	XYLENES (TOTAL)	1000000
	METHYLENE CHLORIDE	85
	ACETONE	7800
	1,1,2,2-TETRACHLOROETHANE	3.2
	PYRENE	2300
P/PCB	AROCLOR-1254	1
	BARIUM, TOTAL	5500
	BERYLLIUM, TOTAL	160
	CADMIUM, TOTAL	39
	CHROMIUM, TOTAL	230
	LEAD, TOTAL	400
	NICKEL, TOTAL	1600
METAL	MERCURY, TOTAL	20
	ARSENIC, TOTAL	.43
Notes:		

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 J flag - Numerical value is an estimated quantity.
 ND indicates Non-Detect
 Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

PRA		5	
PRA Description		PRA #05 NATURAL GAS BLOW	
Sample Type		Normal Sample	
Sample Id	GOR-ASU006-70001	GOR-ASU007-70001	GOR-ASS003-40001
Depth - ft bgs	8 - 10	8 - 10	0 - .5
Collected Date	10/29/97	10/29/97	10/28/97
Laboratory	Recra Amherst	Recra Amherst	Recra Amherst
Sample Collector	Roy F. Weston, Inc.	Roy F. Weston, Inc.	Roy F. Weston, Inc.
Result Units	MG/KG	MG/KG	MG/KG
Action Level		> CAL*	Result Flag
Category	Analyte	Result Flag	> CAL*
VOA	BENZENE	22	ND
	ETHYL BENZENE	7800	ND
	XYLENES (TOTAL)	1000000	ND
	METHYLENE CHLORIDE	85	
	ACETONE	7800	
	1,1,2,2-TETRACHLOROETHANE	3.2	
BNA	PYRENE	2300	ND
P/PCB	AROCLOR-1254	1	ND
METAL	BARIUM, TOTAL	5500	
	BERYLLIUM, TOTAL	160	
	CADMIUM, TOTAL	39	
	CHROMIUM, TOTAL	230	
	LEAD, TOTAL	400	
	NICKEL, TOTAL	1600	
	MERCURY, TOTAL	20	
	ARSENIC, TOTAL	.43	

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

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Table 4-3
Summary of Analytical Results

PRA		6	
PRA Description	OWN VENTS A & B	PRA #06 HORIZONTAL DRIPS A & B	
Sample Type		Field Duplicate (Rep)	Normal Sample
Sample Id	GOR-ASS004-40001	GOR-ASU008-71002	GOR-ASU008-70001
Depth - ft bgs	0 .5	2 - 3	0 - 1
Collected Date	10/28/97	10/29/97	10/29/97
Laboratory	Recra Amherst	Recra Amherst	Recra Amherst
Sample Collector	Roy F. Weston, Inc.	Roy F. Weston, Inc.	Roy F. Weston, Inc.
Result Units	MG/KG	MG/KG	MG/KG
Action Level		> CAL*	> CAL*
Category	Analyte	Result Flag	Result Flag
VOA	BENZENE	22	ND
	ETHYL BENZENE	7800	ND
	XYLENES (TOTAL)	1000000	ND
	METHYLENE CHLORIDE	85	ND
	ACETONE	7800	ND
	1,1,2,2-TETRACHLOROETHANE	3.2	ND
	PYRENE	2300	ND
P/PCB	AROCLOR-1254	1	ND
METAL	BARIUM, TOTAL	5500	ND
	BERYLLIUM, TOTAL	160	ND
	CADMIUM, TOTAL	39	ND
	CHROMIUM, TOTAL	230	ND
	LEAD, TOTAL	400	ND
	NICKEL, TOTAL	1600	ND
	MERCURY, TOTAL	20	ND
	ARSENIC, TOTAL	.43	ND

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

PRA						
PRA Description						
Sample Type		Sample Id		GOR-ASU008-70003		
Depth - ft bgs		2 - 3		4 - 5		0 - 1
Collected Date		10/29/97		10/29/97		10/29/97
Laboratory		Recra Amherst		Recra Amherst		Recra Amherst
Sample Collector		Roy F. Weston, Inc.		Roy F. Weston, Inc.		Roy F. Weston, Inc.
Result Units		MG/KG		MG/KG		MG/KG
Category		Analyte		> CAL*		> CAL*
VOA		BENZENE		Action Level		Result Flag
		22		ND		ND
ETHYL BENZENE		7800		ND		ND
XYLEMES (TOTAL)		1000000		ND		ND
METHYLENE CHLORIDE		85		0.010		ND
ACETONE		7800				
1,1,2,2-TETRACHLOROETHANE		3.2				
BNA		PYRENE		2300		ND
P/PCB		AROCLOR-1254		1		ND
METAL		BARIUM, TOTAL		5500		ND
		BERYLLIUM, TOTAL		160		
		CADMIUM, TOTAL		39		
		CHROMIUM, TOTAL		230		
		LEAD, TOTAL		400		
		NICKEL, TOTAL		1600		
		MERCURY, TOTAL		20		
		ARSENIC, TOTAL		4.3		

Notes:

** "> CAF" equals "X" when reported value is above characterization action level for this locale.

II flag - Numerical value is an estimated quantity

ND indicates Not done.

ND indicates Not Determined.

Table 4-3
Summary of Analytical Results

PRA		7	
PRA Description		PRA #07 FORMER PIPELINE LIC	
Sample Type		Normal Sample	
Sample Id	GOR-ASU009-70002	GOR-ASU009-70003	GOR-ASU010-70001
Depth - ft bgs	2 - 3	4 - 5	0 - 1
Collected Date	10/29/97	10/29/97	10/28/97
Laboratory	Recra Amherst	Recra Amherst	Recra Amherst
Sample Collector	Roy F. Weston, Inc.	Roy F. Weston, Inc.	Roy F. Weston, Inc.
Result Units	MG/KG	MG/KG	MG/KG
Action Level		> CAL*	> CAL*
Category	Analyte	Result Flag	Result Flag
VOA			
	BENZENE	22	ND
	ETHYL BENZENE	7800	ND
	XYLENES (TOTAL)	1000000	0.015 J
	METHYLENE CHLORIDE	85	
	ACETONE	7800	
	1,1,2,2-TETRACHLOROETHANE	3.2	
BNA	PYRENE	2300	ND
P/PCB	AROCLOR-1254	1	ND
METAL	BARIUM, TOTAL	5500	
	BERYLLIUM, TOTAL	160	
	CADMIUM, TOTAL	39	
	CHROMIUM, TOTAL	230	
	LEAD, TOTAL	400	
	NICKEL, TOTAL	1600	
	MERCURY, TOTAL	20	
	ARSENIC, TOTAL	.43	

Notes:

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J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

PRA		8	
PRA Description	QUIDS ABOVEGROUND TANK (AT) (APPROX. 4000-GALLON)	PRA #08 SEPTIC SYSTEM DRAF	
Sample Type	Normal Sample		
Sample Id	GOR-ASU010-70002	GOR-ASU010-70003	GOR-ASU011-70001
Depth - ft bgs	2 . 3	4 . 5	0 . 5
Collected Date	10/28/97	10/28/97	10/28/97
Laboratory	Recra Amherst	Recra Amherst	Recra Amherst
Sample Collector	Roy F. Weston, Inc.	Roy F. Weston, Inc.	Roy F. Weston, Inc.
Result Units	MG/KG	MG/KG	MG/KG
Action Level		> CAL*	> CAL*
Category	Analyte	Result Flag	Result Flag
VOA	BENZENE	22	ND
	ETHYL BENZENE	7800	ND
	XYLENES (TOTAL)	1000000	ND
	METHYLENE CHLORIDE	85	
	ACETONE	7800	
	1,1,2,2-TETRACHLOROETHANE	3.2	
BNA	PYRENE	2300	ND
	AROCLOR-1254	1	ND
	BARIUM, TOTAL	5500	ND
	BERYLLIUM, TOTAL	160	
	CADMIUM, TOTAL	39	
	CHROMIUM, TOTAL	230	
METAL	LEAD, TOTAL	400	
	NICKEL, TOTAL	1600	
	MERCURY, TOTAL	20	
	ARSENIC, TOTAL	.43	

Notes:

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J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

PRA		9	
PRA Description	FIELD	PRA #09 FORMER POND	
Sample Type	Normal Sample		
Sample Id	GOR-ASU012-70001	GOR-ASD001-30001	GOR-ASD002-30001
Depth - ft bgs	0 . 5	0 . 1	0 . 1
Collected Date	10/28/97	10/29/97	10/29/97
Laboratory	Recra Amherst	Recra Amherst	Recra Amherst
Sample Collector	Roy F. Weston, Inc.	Roy F. Weston, Inc.	Roy F. Weston, Inc.
Result Units	MG/KG	MG/KG	MG/KG
Action Level	Result Flag	> CAL*	Result Flag
Analyte			
VOA			
BENZENE	22	ND	ND
ETHYL BENZENE	7800	ND	ND
XYLENES (TOTAL)	1000000	ND	ND
METHYLENE CHLORIDE	85		ND
ACETONE	7800		ND
1,1,2,2-TETRACHLOROETHANE	3.2	0.011 R	ND
BNA			
PYRENE	2300		ND
P/PCB			
AROCLOR-1254	1	ND	ND
METAL			
BARIUM, TOTAL	5500		ND
BERYLLIUM, TOTAL	160		ND
CADMIUM, TOTAL	39		ND
CHROMIUM, TOTAL	230	166 J	112 J
LEAD, TOTAL	400		ND
NICKEL, TOTAL	1600		ND
MERCURY, TOTAL	20		ND
ARSENIC, TOTAL	.43	9.6 J	X
		8.2 J	X

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

PRA						
PRA Description						
Sample Type		Sample Id		GOR-ASD004-30001		
Depth - ft bgs	0 - 1			0 - 1		0 - 1
Collected Date	10/29/97			10/29/97		10/29/97
Laboratory	Recra Amherst			Recra Amherst		Recra Amherst
Sample Collector	Roy F. Weston, Inc.			Roy F. Weston, Inc.		Roy F. Weston, Inc.
Result Units	MG/KG			MG/KG		MG/KG
Category	Analyte	Action Level	Result Flag	> CAL*	Result Flag	> CAL*
VOA	BENZENE	22	ND		ND	ND
	ETHYL BENZENE	7800	ND		ND	ND
	XYLENES (TOTAL)	1000000	ND		ND	ND
	METHYLENE CHLORIDE	85	ND		ND	ND
	ACETONE	7800	ND		ND	ND
	1,1,2,2-TETRACHLOROETHANE	3.2	ND		ND	ND
BNA	PYRENE	2300	ND		ND	ND
P/PCB	AROCLOR-1254	1	ND		ND	ND
METAL	BARIUM, TOTAL	5500	161 J		108 J	111 J
	BERYLLIUM, TOTAL	160	ND		ND	ND
	CADMIUM, TOTAL	39	ND		ND	ND
	CHROMIUM, TOTAL	230	17.9		10.9	12.2
	LEAD, TOTAL	400	ND		ND	ND
	NICKEL, TOTAL	1600	32.6		15.6	ND
	MERCURY, TOTAL	20	ND		ND	ND
	ARSENIC, TOTAL	.43	9.7 J	X	6.7 J	X

Notes.

** > CAI " equals " X " when reported value is above characterization action level for this locale.

> CILI equans x when reported value is used

ND indicates Non-Detect.

** > CAI " equals " X " when reported value is above characterization action level for this locale.

Table 4-3
Summary of Analytical Results

PRA						
PRA Description						
Sample Type		Sample Id		GOR-ASD006-30001		
Depth - ft bgs	0 - 1			0 - 1		0 - 1
Collected Date	10/29/97			10/29/97		10/29/97
Laboratory	Recra Amherst			Recra Amherst		Recra Amherst
Sample Collector	Roy F. Weston, Inc.			Roy F. Weston, Inc.		Roy F. Weston, Inc.
Result Units	MG/KG			MG/KG		MG/KG
Category	Analyte	Action Level	Result Flag	> CAL*	Result Flag	> CAL*
VOA	BENZENE	22	ND		ND	ND
	ETHYL BENZENE	7800	ND		ND	ND
	XYLENES (TOTAL)	1000000	ND		ND	ND
	METHYLENE CHLORIDE	85	ND		ND	ND
	ACETONE	7800	ND		ND	ND
	1,1,2,2-TETRACHLOROETHANE	3.2	ND		ND	ND
BNA	PYRENE	2300	ND		ND	ND
P/PCB	AROCLOR-1254	1	ND		ND	ND
METAL	BARIUM, TOTAL	5500	10 ⁷ J		112 J	136 J
	BERYLLIUM, TOTAL	160	ND		ND	ND
	CADMIUM, TOTAL	39	1.6		ND	1.7
	CHROMIUM, TOTAL	230	10.6		11.2	10.4
	LEAD, TOTAL	400	ND		ND	ND
	NICKEL, TOTAL	1600	14.5		ND	15.7
	MERCURY, TOTAL	20	ND		ND	ND
	ARSENIC, TOTAL	.43	5.8 J	X	4.5 J	X

Notes.

** > CAI " equals " X " when reported value is above characterization action level for this locale.

> CILL equans x when reported value is too

ND indicates Non-Detect.

ND indicates Not detected; BIR, branching ratio; and IRR, integrated relative rate.

Table 4-3
Summary of Analytical Results

PRA						
PRA Description						
Sample Type		Sample Id		GOR-ASD009-30001		
Depth - ft bgs	0 - 1			0 - 1		0 - 10
Collected Date	10/29/97			10/29/97		10/29/97
Laboratory	Recra Amherst			Recra Amherst		Recra Amherst
Sample Collector	Roy F. Weston, Inc.			Roy F. Weston, Inc.		Roy F. Weston, Inc.
Result Units	MG/KG			MG/KG		MG/KG
Category	Analyte	Action Level	Result Flag	> CAL*	Result Flag	> CAL*
VOA	BENZENE	22	ND		ND	ND
	ETHYL BENZENE	7800	ND		ND	ND
	XYLENES (TOTAL)	1000000	ND		ND	ND
	METHYLENE CHLORIDE	85	0.015 J		0.010 J	ND
	ACETONE	7800	ND		ND	ND
	1,1,2,2-TETRACHLOROETHANE	3.2	0.011 R		0.007 R	ND
BNA	PYRENE	2300	ND		ND	ND
P/PCB	AROCLOR-1254	1	ND		ND	ND
METAL	BARIUM, TOTAL	5500	103 J		105 J	105
	BERYLLIUM, TOTAL	160	ND		ND	1.5
	CADMIUM, TOTAL	39	ND		ND	2.5
	CHROMIUM, TOTAL	230	10.6		10.6	15.7
	LEAD, TOTAL	400	ND		ND	ND
	NICKEL, TOTAL	1600	ND		17.4	18.6
	MERCURY, TOTAL	20	ND		ND	ND
	ARSENIC, TOTAL	.43	4.3 J	X	3.2 J	X

Notes.

** > CAI " equals "X" when reported value is above characterization action level for this locale.

> CILI equans x when reported value is used

ND indicates Non-Detect.

** > CAI " equals "X" when reported value is above characterization action level for this locale.

Table 4-3
Summary of Analytical Results

PRA						
PRA Description						
Sample Type		GOR-ATP002-50001		GOR-ATP003-50001		
Sample Id	GOR-ATP002-50001	0 - 10	0 - 10	0 - 10	0 - 10	GOR-ATP004-50001
Depth - ft bgs	0 - 10					
Collected Date	10/29/97	10/29/97	10/29/97	10/29/97	10/29/97	
Laboratory	Recra Amherst	Recra Amherst	Recra Amherst	Recra Amherst	Recra Amherst	
Sample Collector	Roy F. Weston, Inc.	Roy F. Weston, Inc.	Roy F. Weston, Inc.	Roy F. Weston, Inc.	Roy F. Weston, Inc.	
Result Units	MG/KG	MG/KG	MG/KG	MG/KG	MG/KG	
Category	Analyte	Action Level	Result Flag	> CAL*	Result Flag	> CAL*
VOA	BENZENE	22	ND		ND	ND
	ETHYL BENZENE	7800	ND		ND	ND
	XYLENES (TOTAL)	1000000	ND		ND	ND
	METHYLENE CHLORIDE	85	ND		ND	ND
	ACETONE	7800	ND		0.20 J	ND
	1,1,2,2-TETRACHLOROETHANE	3.2	ND		ND	ND
	PYRENE	2300	ND		ND	ND
P/PCB	AROCLOR-1254	1	ND		ND	ND
	BARIUM, TOTAL	5500	116		104	82.5
	BERYLLIUM, TOTAL	160	ND		ND	ND
	CADMIUM, TOTAL	39	2.3		ND	ND
	CHROMIUM, TOTAL	230	14.0		11.8	16.0
	LEAD, TOTAL	400	43.6		ND	ND
	NICKEL, TOTAL	1600	15.0		ND	ND
METAL	MERCURY, TOTAL	20	0.50		ND	ND
	ARSENIC, TOTAL	.43	14.0	X	3.9	X

Notes:

** "> CAL" equals "X" when reported value is above characterization action level for this locale.

I flag = Numerical value is an estimated quantity.

ND indicates Non Detect.

NB indicates Non-Detect.

Table 4-3
Summary of Analytical Results

PRA	10			
PRA Description	PRA #10 FORMER COMPRESSOR PAD			
Sample Type	Normal Sample			
Sample Id	GOR-ASU013-70001	GOR-ASU013-70002	GOR-ASU013-70003	
Depth - ft bgs	0 - 1	2 - 3	4 - 5	
Collected Date	10/28/97	10/28/97	10/28/97	
Laboratory	Recra Amherst	Recra Amherst	Recra Amherst	
Sample Collector	Roy F. Weston, Inc.	Roy F. Weston, Inc.	Roy F. Weston, Inc.	
Result Units	MG/KG	MG/KG	MG/KG	
Action Level		> CAL*	> CAL*	Result Flag
Category	Analyte			
VOA				
BENZENE	22	ND	ND	ND
ETHYL BENZENE	7800	ND	ND	ND
XYLENES (TOTAL)	1000000	ND	ND	ND
METHYLENE CHLORIDE	85			
ACETONE	7800			
1,1,2,2-TETRACHLOROETHANE	3.2			
BNA				
PYRENE	2300			
P/PCB				
AROCOLOR-1254	1	ND	ND	ND
METAL				
BARIUM, TOTAL	5500			
BERYLLIUM, TOTAL	160			
CADMIUM, TOTAL	39			
CHROMIUM, TOTAL	230			
LEAD, TOTAL	400			
NICKEL, TOTAL	1600			
MERCURY, TOTAL	20			
ARSENIC, TOTAL	.43			

Notes:

* "> CAL" equals "X" when reported value is above characterization action level for this locale.

J flag - Numerical value is an estimated quantity.

ND indicates Non-Detect

Blank cells in result column indicate an analysis was not performed for that analyte.

Table 4-3
Summary of Analytical Results

PRA						
PRA Description						
Sample Type						
Sample Id	GOR-ASU014-70001	GOR-ASU014-70002	GOR-ASU014-70003			
Depth - ft bgs	0 - 1	2 - 3	4 - 5			
Collected Date	10/28/97	10/28/97	10/28/97			
Laboratory	Recra Amherst	Recra Amherst	Recra Amherst			
Sample Collector	Roy F. Weston, Inc.	Roy F. Weston, Inc.	Roy F. Weston, Inc.			
Result Units	MG/KG	MG/KG	MG/KG			
Category	Analyte	Action Level	Result Flag	> CAL*	Result Flag	> CAL*
VOA	BENZENE	22	ND	ND	ND	ND
	ETHYL BENZENE	7800	ND	ND	ND	ND
	XYLENES (TOTAL)	1000000	ND	ND	ND	0.006
	METHYLENE CHLORIDE	85				
	ACETONE	7800				
	1,1,2,2-TETRACHLOROETHANE	3.2				
BNA	PYRENE	2300	ND	ND	ND	ND
P/PCB	AROCLOR-1254	1	ND	0.11 J	ND	ND
METAL	BARIUM, TOTAL	5500				
	BERYLLIUM, TOTAL	160				
	CADMIUM, TOTAL	39				
	CHROMIUM, TOTAL	230				
	LEAD, TOTAL	400				
	NICKEL, TOTAL	1600				
	MERCURY, TOTAL	20				
	ARSENIC, TOTAL	.43				

Notes:

** "> CAF" equals "X" when reported value is above characterization action level for this locale.

II flag - Numerical value is an estimated quantity

ND indicates Non-Detect

Generalization Work Plan Program Sites

Table 4-3
Summary of Analytical Results

PRA						
PRA Description						
Sample Type						
Sample Id	GOR-ASU015-70001	GOR-ASU015-70002	GOR-ASU015-70003			
Depth - ft bgs	0 - 1	2 - 3	4 - 5			
Collected Date	10/29/97	10/29/97	10/29/97			
Laboratory	Recra Amherst	Recra Amherst	Recra Amherst			
Sample Collector	Roy F. Weston, Inc.	Roy F. Weston, Inc.	Roy F. Weston, Inc.			
Result Units	MG/KG	MG/KG	MG/KG			
Category	Analyte	Action Level	> CAL*	> CAL*	> CAL*	> CAL*
VOA	BENZENE	22	ND	ND	ND	ND
	ETHYL BENZENE	7800	ND	ND	ND	ND
	XYLENES (TOTAL)	1000000	ND	ND	0.018	
	METHYLENE CHLORIDE	85				
	ACETONE	7800				
	1,1,2,2-TETRACHLOROETHANE	3.2				
BNA	PYRENE	2300				
P/PCB	AROCLOR-1254	1	ND	ND	ND	ND
METAL	BARIUM, TOTAL	5500				
	BERYLLIUM, TOTAL	160				
	CADMIUM, TOTAL	39				
	CHROMIUM, TOTAL	230				
	LEAD, TOTAL	400				
	NICKEL, TOTAL	1600				
	MERCURY, TOTAL	20				
	ARSENIC, TOTAL	.43				

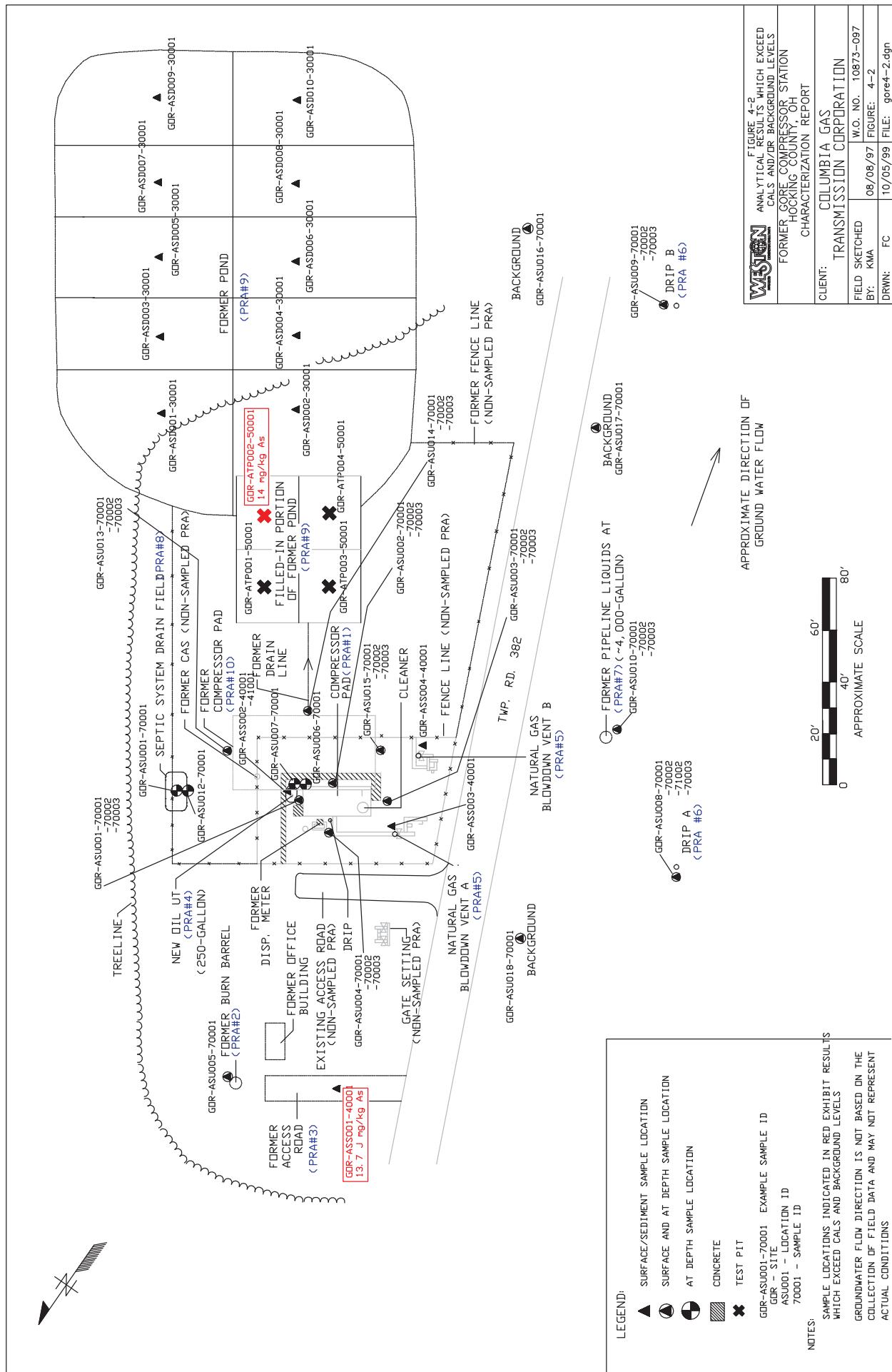
Notes:

** "> CAF" equals "X" when reported value is above characterization action level for this locale.

II flag - Numerical value is an estimated quantity

ND indicates Not done.

ND indicates Not Detected.



It should be noted that the laboratory reporting limits for benzo(a)pyrene (0.33 mg/kg), dibenzo(a,h)anthracene (0.33 mg/kg), and arsenic (1.0 mg/kg) slightly exceeded the respective CALs. No concentrations of benzo(a)pyrene or dibenzo(a,h)anthracene were detected in any of the site samples, and the site background level for arsenic (11.4 mg/kg) was well above the respective reporting limit. Polycyclic Aromatic Hydrocarbons (PAHs) such as benzo(a)pyrene and dibenzo(a,h)anthracene are usually considered as a group because they are commonly found as mixtures of compounds in the environment. Ten sediment sample and four soil samples were analyzed for PAHs. Pyrene, at a concentration of 0.33 J mg/kg, was the only PAH reported. The lack of other PAHs in samples from the site supports the laboratory data indicating that benzo(a)pyrene and dibenzo(a,h)anthracene are not present in soil or sediment at the site.

The Comprehensive Analytical Result tables, as prepared by ESi, and the sample chain-of-custody forms (COCs) are included in Appendix D of this CR/RAWP. Columbia maintains a hard copy of all analytical data should additional review be needed.

4.3.1 Background Sampling Results

The three background soil samples (ASU016 through ASU018) were collected in areas not considered to be impacted by site operations, and analyzed for CWP Table 1 Constituents (Table 3-2). Table 4-3 summarizes the results of the background samples. Laboratory analytical results indicated the presence of various metals at concentrations below the CALs with the exception of arsenic. Arsenic was detected in the three samples above the CAL, at concentrations of 7.6 mg/kg (ASU016), 5.0 mg/kg (ASU017), and 4.5 mg/kg (ASU018). The CAL for arsenic is 0.43 mg/kg. VOCs, SVOCs, PCBs, and cyanide were not detected in any of the site background samples.

As provided for in the CWP, the highest concentration of a constituent detected in the background samples, or those presented in Appendix H (U.S. EPA-approved method to calculate background), whichever is higher, will be used to establish the background concentration for this constituent at the site. The calculated site background concentration for arsenic, as listed in Appendix H, is 11.4 mg/kg.

4.3.2 Soil and Sediment Potential Release Areas

PRA #1 Compressor Pad

Twelve soil samples (associated with soil borings ASU001 through ASU004) were collected adjacent to the compressor pad, at depths to 5 ft bgs. Benzene was detected in one sample, at a concentration (0.014 mg/kg) well below the CAL of 22 mg/kg. Ethylbenzene (0.009 to 4.5 mg/kg) was detected below the CAL in three of the samples. Xylenes were detected below the CAL in six of the samples, at concentrations ranging from 0.011 mg/kg to 22 mg/kg. Three of the twelve samples were analyzed for PAHs, and no concentrations were detected in any of these samples.

The soil boring at the north side of the compressor pad (ASU004) was positioned to also characterize the former displacement meter (non-mercury containing) and drip. The soil boring at the south side of the compressor pad (ASU002) was positioned to also characterize the north side of the former compressor pad (PRA #10). The soil boring at the east side of the compressor pad (ASU001) was positioned to also characterize the north end of the new oil UT (PRA #4). The soil boring at the west side of the compressor pad (ASU003) was positioned to also characterize the cleaner.

PRA #2 Former Burn Barrel

Three soil samples (associated with soil boring ASU005) were collected adjacent to the former burn barrel, at depths to 5 ft bgs. No concentrations of VOCs, PCBs, or cyanide were detected in any of these samples. Pyrene was detected below the CAL in one of these samples, at a concentration of 0.33 J mg/kg. Of the metals results, arsenic was detected above the CAL in each of the samples, at concentrations ranging from 4.9 mg/kg to 7.8 mg/kg. These results are below the arsenic site background level of 11.4 mg/kg.

Barium was detected in two samples at concentrations of 86.2 and 94.4 mg/kg. These results are below the CAL and the site background concentration of 146.3 mg/kg. Beryllium was detected in one sample at a concentration of 1.2 mg/kg. This concentration is lower than CAL and lower than the site background concentration of 1.7 mg/kg. Cadmium was detected in two samples at

concentrations of 1.2 and 1.5 mg/kg. These concentrations are below the CAL and lower than the site background concentration of 2.63 mg/kg. Chromium was detected in three samples, at concentrations ranging from 8 to 10 mg/kg. These concentrations were below the CAL and below the site background concentration for chromium of 23.87 mg/kg. Lead was detected in one sample at a concentration of 44.9 mg/kg. This concentration is below the CAL, but slightly exceeds the site background concentration of 43.6 mg/kg

PRA #3 Former Access Road

One surface soil sample (ASS001) was collected in the approximate center of the former site access road. No concentrations of VOCs, SVOCs, PCBs, or cyanide were detected in this sample. Arsenic was detected in this sample above the CAL at a concentration of 13.7 J mg/kg. This result is above the arsenic site background level of 11.4 mg/kg.

PRA #4 New Oil UT (250 gal)

Two subsurface soil samples (associated with soil borings ASU006 and ASU007) were collected at the south end of the new oil UT, at depths to 10 ft bgs. Two soil borings were collected at the south end of the UT, instead of one as proposed in the SAP, as discussed in Section 3.1. The north end of the UT was characterized by soil boring ASU001, which was collected at the compressor pad (PRA #1).

One surface soil sample (ASS002), plus one duplicate sample, was also collected adjacent to the fill port for the new oil UT. BTEX was not detected in any of the surface or subsurface soil samples.

PRA #5 Natural Gas Blowdown Vents (A & B)

Two surface soil samples (ASS003 and ASS004) were collected adjacent to two natural gas blowdown vents. PCBs were not detected in either of these samples.

PRA #6 Drips (A & B)

Six soil samples (associated with soil borings ASU008 and ASU009), plus one duplicate sample, were collected adjacent to each of two horizontal drips, at depths to 5 ft bgs. PCBs were not detected in any of these samples. Xylenes were detected below the CAL in three of the samples, at concentrations ranging from 0.010 to 0.14 mg/kg. One of the samples was analyzed for PAHs, and no concentrations were detected in the sample.

PRA #7 Former Pipeline Liquids AT (≈4,000 gal)

Three soil samples (associated with soil boring ASU010) were collected adjacent to the former pipeline liquids AT, at depths to 5 ft bgs. BTEX and PCBs were not detected in these samples.

PRA #8 Septic System Drain Field

Two subsurface soil samples (associated with soil borings ASU011 and ASU012) were collected within and downgradient of the drain field, at depths to 5 ft bgs. No concentrations of BTEX or PCBs were detected in either of these samples.

PRA #9 Former Pond

Four test pits (ATP001 through ATP004) were conducted within the filled-in portion of the former pond (see Figure 3-1). Only one soil sample was collected from each test pit, instead of three samples as proposed in the SAP, because no ash or waste was discovered during the excavation (see Section 3.1). The remainder of the former pond was divided into ten sample zones, each approximately 30 ft by 75 ft. One sediment sample was then collected in the approximate center of each zone (ten total samples, ASD001 through ASD010).

SVOCs, PCBs, and cyanide were not detected in any of the test pit or sediment samples. Acetone was detected below the CAL in one of the test pit samples, at a concentration of 0.20 J mg/kg. Methylene chloride was detected below the CAL in two of the sediment samples, at concentrations of 0.015 J and 0.010 J.

Of the metals results, arsenic was detected above the CAL in each of the test pit and sediment samples, at concentrations ranging from 3.2 J mg/kg to 14 mg/kg. All results were below the site background level for arsenic, with the exception of test pit sample ATP002. The concentration detected in ATP002 (14 mg/kg) was slightly higher than the site-specific background concentration of 11.4 mg/kg. Barium was detected in fourteen samples, at concentrations ranging from 82.5 to 166 mg/kg. These concentrations are below the CAL. Beryllium was detected in one sample at a concentration of 1.5 mg/kg. This concentration is below the CAL and lower than the site background concentration of 1.7 mg/kg. Cadmium was detected in five samples, at concentrations ranging from 1.5 mg/kg to 2.5 mg/kg. These concentrations are below the CAL and below the site background concentration of 2.63 mg/kg. Chromium was detected in fifteen samples, at concentrations ranging from 7 to 17.9 mg/kg. These concentrations are lower than the CAL and also lower than the site background concentration of 23.9 mg/kg. Lead was detected in one sample at a concentration of 43.6 mg/kg. This concentration is lower than the CAL and the same as the site background concentration. Nickel was detected in eight samples at concentrations ranging from 14.5 to 32.6 mg/kg. These concentrations are lower than the CAL. Mercury was detected in two samples at concentrations of 0.5 and 0.86 mg/kg. These concentrations are lower than the CAL; mercury was not detected in background samples.

PRA #10 Former Compressor Pad

Nine soil samples (associated with soil borings ASU013 through ASU015) were collected adjacent to the former compressor pad, at depths to 5 ft bgs. PCBs were detected below the CAL in sample ASU014-70002, at a concentration of 0.11 J mg/kg. Xylenes were detected below the CAL in two of the samples, at concentrations of 0.006 mg/kg and 0.018 mg/kg.

The north side of the former compressor pad was characterized by a soil boring (ASU002) conducted at the existing compressor pad (PRA #1). Xylenes were detected below the CAL in two of these samples, at concentrations of 13 mg/kg and 2.1 mg/kg.

APPENDIX H

CALCULATION OF SITE BACKGROUND CONCENTRATIONS

Appendix H – Background Calculations

I. BACKGROUND CALCULATION FOR ARSENIC

Arsenic Results in Background Samples

a = 7.6 mg/kg
b = 5 mg/kg
c = 4.5 mg/kg
n = 3, number of sample results

Background Arsenic Level Calculation*

$$\begin{aligned}\text{Background Arsenic Level, Calculated} &= [(a+b+c)/n] \times 2 \\ &= [(7.6 + 5 + 4.5)/3] \times 2 \\ &= (17.1/3) \times 2 \\ &= 5.7 \times 2 \\ &= 11.4 \text{ mg/kg}\end{aligned}$$

Comparison to Highest Detected Background Concentration

Site Background Arsenic Level is the higher of the:

$$\begin{aligned}\text{Background Arsenic level, Calculated} &= 11.4 \text{ mg/kg} \\ \text{Highest Detected Background Concentration} &= 7.6 \text{ mg/kg}\end{aligned}$$

SITE BACKGROUND ARSENIC LEVEL = 11.4 MG/KG

Note: Calculations based on "Data Collection and Evaluation, Human Health Risk Assessment Bulletin No. 2, Supplemental Guidance to RAGs," Office of Technical Services, USEPA Region IV, October 1996.

II. BACKGROUND CALCULATION FOR BARIUM

Barium Results in Background Samples

a = 53.4 mg/kg
b = 77.6 mg/kg
c = 88.4 mg/kg
n = 3, number of sample results

Background Barium Level Calculation*

$$\begin{aligned}\text{Background Barium Level, Calculated} &= [(a+b+c)/n] \times 2 \\ &= [(53.4 + 77.6 + 88.4)/3] \times 2 \\ &= (219.4/3) \times 2 \\ &= 73.13 \times 2 \\ &= 146.3 \text{ mg/kg}\end{aligned}$$

Comparison to Highest Detected Background Concentration

Site Background Barium Level is the higher of the:

$$\begin{aligned}\text{Background Barium level, Calculated} &= 146.3 \text{ mg/kg} \\ \text{Highest Detected Background Concentration} &= 88.4 \text{ mg/kg}\end{aligned}$$

SITE BACKGROUND BARIUM LEVEL = 146.3 MG/KG

Note: Calculations based on "Data Collection and Evaluation, Human Health Risk Assessment Bulletin No. 2, Supplemental Guidance to RAGs," Office of Technical Services, USEPA Region IV, October 1996.

III. BACKGROUND CALCULATION FOR BERYLLIUM

Beryllium Results in Background Samples

a = 1.3 mg/kg
b = 0.65 mg/kg
c = 0.6 mg/kg
n = 3, number of sample results

Background Beryllium Level Calculation*

$$\begin{aligned}\text{Background Beryllium Level, Calculated} &= [(a+b+c)/n] \times 2 \\ &= [(1.3 + 0.65 + 0.6)/3] \times 2 \\ &= (2.55/3) \times 2 \\ &= 0.85 \times 2 \\ &= 1.70 \text{ mg/kg}\end{aligned}$$

Comparison to Highest Detected Background Concentration

Site Background Beryllium Level is the higher of the:

$$\begin{array}{lcl} \text{Background Beryllium level, Calculated} & = & 1.7 \text{ mg/kg} \\ \text{Highest Detected Background Concentration} & = & 1.3 \text{ mg/kg} \end{array}$$

SITE BACKGROUND BERYLLIUM LEVEL = 1.7 MG/KG

Note: Calculations based on "Data Collection and Evaluation, Human Health Risk Assessment Bulletin No. 2, Supplemental Guidance to RAGs," Office of Technical Services, USEPA Region IV, October 1996.

IV. BACKGROUND CALCULATION FOR CADMIUM

Cadmium Results in Background Samples

a = 2 mg/kg
b = 0.65 mg/kg
c = 1.3 mg/kg
n = 3, number of sample results

Background Cadmium Level Calculation*

$$\begin{aligned}\text{Background Cadmium Level, Calculated} &= [(a+b+c)/n] \times 2 \\ &= [(2 + 0.65 + 1.3)/3] \times 2 \\ &= (3.95/3) \times 2 \\ &= 1.316 \times 2 \\ &= 2.63 \text{ mg/kg}\end{aligned}$$

Comparison to Highest Detected Background Concentration

Site Background Cadmium Level is the higher of the:

$$\begin{aligned}\text{Background Cadmium level, Calculated} &= 2.63 \text{ mg/kg} \\ \text{Highest Detected Background Concentration} &= 2 \text{ mg/kg}\end{aligned}$$

SITE BACKGROUND CADMIUM LEVEL = 2.63 MG/KG

Note: Calculations based on "Data Collection and Evaluation, Human Health Risk Assessment Bulletin No. 2, Supplemental Guidance to RAGs," Office of Technical Services, USEPA Region IV, October 1996.

V. BACKGROUND CALCULATION FOR CHROMIUM

Chromium Results in Background Samples

a = 14.8 mg/kg
b = 9.4 mg/kg
c = 11.6 mg/kg
n = 3, number of sample results

Background Chromium Level Calculation*

$$\begin{aligned}\text{Background Chromium Level, Calculated} &= [(a+b+c)/n] \times 2 \\ &= [(14.8 + 9.4 + 11.6)/3] \times 2 \\ &= (35.8/3) \times 2 \\ &= 11.83 \times 2 \\ &= 23.86 \text{ mg/kg}\end{aligned}$$

Comparison to Highest Detected Background Concentration

Site Background Chromium Level is the higher of the:

$$\begin{aligned}\text{Background Chromium level, Calculated} &= 23.86 \text{ mg/kg} \\ \text{Highest Detected Background Concentration} &= 14.8 \text{ mg/kg}\end{aligned}$$

SITE BACKGROUND CHROMIUM LEVEL = 23.86 MG/KG

Note: Calculations based on "Data Collection and Evaluation, Human Health Risk Assessment Bulletin No. 2, Supplemental Guidance to RAGs," Office of Technical Services, USEPA Region IV, October 1996.

VI. BACKGROUND CALCULATION FOR NICKEL

Nickel Results in Background Samples

a = 14.4 mg/kg
b = 6.4 mg/kg
c = 6.4 mg/kg
n = 3, number of sample results

Background Nickel Level Calculation*

$$\begin{aligned}\text{Background Nickel Level, Calculated} &= [(a+b+c)/n] \times 2 \\ &= [(14.4 + 10 + 10)/3] \times 2 \\ &= (27.2/3) \times 2 \\ &= 9.066 \times 2 \\ &= 18.13 \text{ mg/kg}\end{aligned}$$

Comparison to Highest Detected Background Concentration

Site Background Nickel Level is the higher of the:

$$\begin{aligned}\text{Background Nickel level, Calculated} &= 18.13 \text{ mg/kg} \\ \text{Highest Detected Background Concentration} &= 14.4 \text{ mg/kg}\end{aligned}$$

SITE BACKGROUND NICKEL LEVEL = 18.13 MG/KG

Note: Calculations based on "Data Collection and Evaluation, Human Health Risk Assessment Bulletin No. 2, Supplemental Guidance to RAGs," Office of Technical Services, USEPA Region IV, October 1996.